

Canadian Pandemic Influenza Preparedness – A Changing Paradigm

PUBLIC HEALTH AGENCY *of* CANADA
AGENCE DE SANTÉ PUBLIQUE *du* CANADA

Arlene King, MD, MHSc, FRCPC
**Director General for Pandemic
Preparedness**

Council of Ontario Medical Officers of Health
June 11, 2007



Public Health
Agency of Canada

Agence de santé
publique du Canada

Canada 

Objectives

- To describe the scope of pandemic planning globally and in Canada
- To provide an overview of Federal health sector roles and responsibilities
- To describe how pandemic planning is occurring in the Canadian health sector
- To provide an update on what has been and is being done to increase our level of health sector preparedness in Canada

Pandemic Planning

- International
 - UNSIC, WHO, FAO, OIE, UNICEF, NGO (Int'l Red Cross), etc
- Canada – Governmental Sector
 - (1) Health Sector
 - Public Health Agency of Canada, Health Canada, Provincial and Territorial Ministries of Health, Local and Municipal Health Authorities/Departments, Institutional
 - (2) Emergency Management and Other Government Departments
 - Federal, Provincial/Territorial, Local/Municipal
- Canada - Civil Society (NGO Sector)
 - Canadian Red Cross, etc
- Canada - Private Sector
 - Eg, Critical Infrastructure Sectors, other than Government

Federal Health Sector Role – Preparedness - I

- Maintaining the *Canadian Pandemic Plan for the Health Sector*
- Supporting structures and processes to enable national pandemic planning
- Regulating and monitoring the safety and effectiveness of antivirals and vaccines; supporting annual and pandemic influenza vaccine development and production in Canada
- *Provision of administrative, policy and technical expertise to enable the development of national policy recommendations related to pandemic preparedness and response*

Federal Health Sector Role – Preparedness - II

- Maintaining the National Emergency Stockpile System (NESS)
- Cost-sharing National Antiviral Stockpile (NAS)
- Provision of support to outbreak and surveillance capacity development
- Supporting, conducting and funding influenza and pandemic influenza research

Federal Health Sector Role - Response

- Supporting structures and processes to enable national pandemic response
- Serving as the international liaison, with other governments and the WHO; quarantine services at ports of entry
- Supplementing provincial/territorial response efforts *upon request* including laboratory, clinical and epidemiological support
- Providing services to specific “federal” populations

“A key requirement ... is a truly collaborative framework and ethos among different levels of government.

The rules and norms for a seamless public health system must be sorted out with a shared commitment to protecting and promoting the health of Canadians.”

- ***Learning from SARS: Renewal of Public Health in Canada***

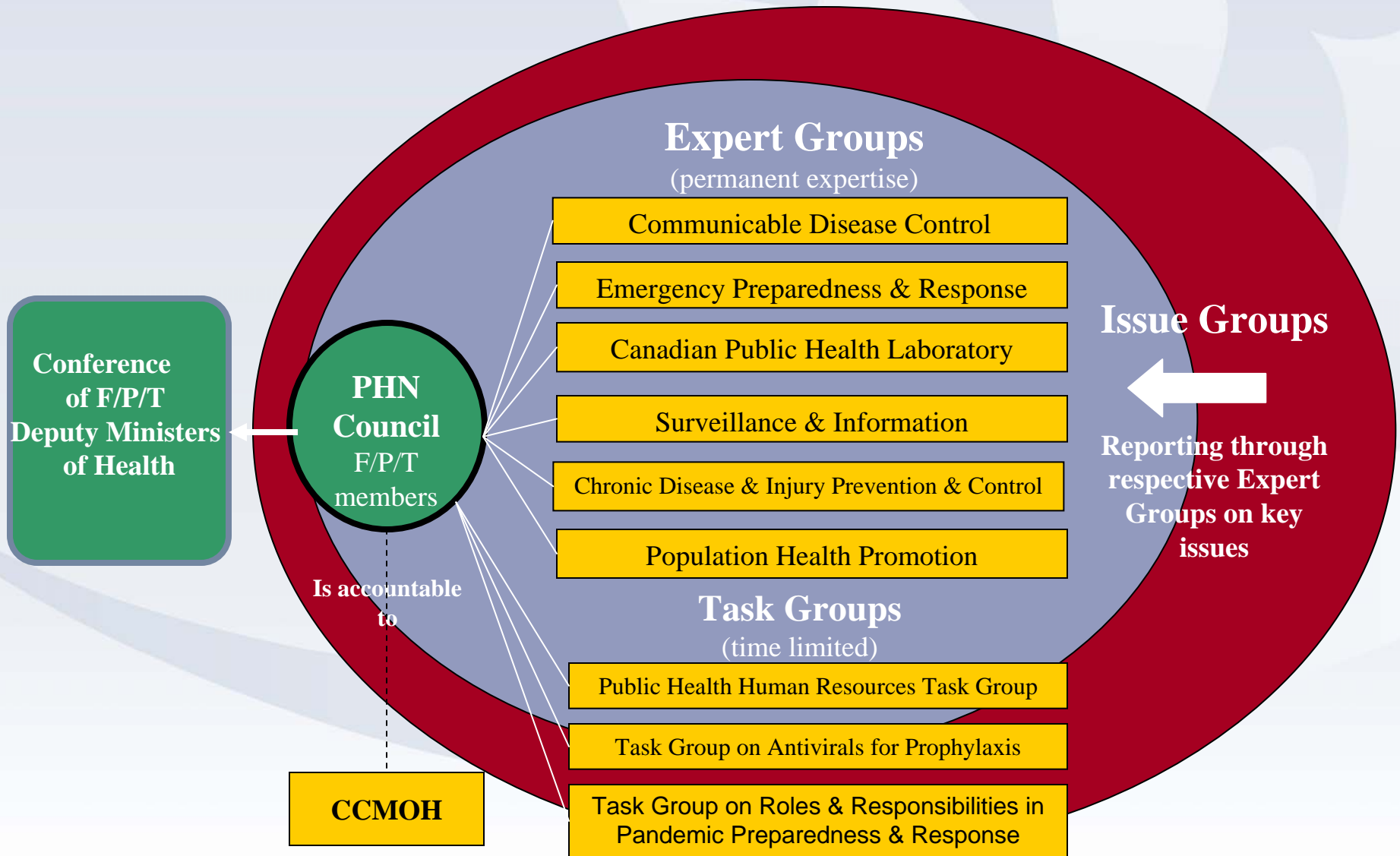
Public Health Agency of Canada (PHAC)

- Public Health Agency created and Chief Public Health Officer appointed September 24, 2004
- *Public Health Agency of Canada Act* came into force December 12, 2006
 - Provides statutory basis for PHAC
 - Confirms position and duties of the Chief Public Health Officer of Canada
- PHAC plays important role in ensuring collaboration across all jurisdictions, institutions and sectors

Canadian Public Health Network (PHN)

- Created in 2005
- Led by Council of public health representatives from all jurisdictions
- Expert committees in key public health areas
- Facilitates communication, sharing of knowledge, development of public health strategies and policies

Structure of the Canadian Public Health Network



The Canadian Pandemic Influenza Plan for the Health Sector



Pandemic
Influenza
Pandémie
d'influenza



2006

•www.phac-aspc.gc.ca

Canadian Pandemic Influenza Plan for the Health Sector (CPIP)

- Based on nationally agreed upon goal
- Organized by components, by pandemic phase
- Outlines roles and responsibilities of all levels of government
- Balanced, multifaceted approach to preparedness and response
- Evergreen document, incorporating rapidly involving science and perspectives

Canadian Pandemic Influenza Plan for the Health Sector - II

Foreword and Acknowledgments

Preface

Sections

- Introduction
- Background
- Preparedness
- Response
- Annexes

Annexes

- Annex A – Planning Checklists
- Annex B – Pandemic Influenza Planning Considerations in First Nations Communities
- Annex C – Laboratory Procedures
- Annex D – Recommendations for Pandemic Vaccine Use
- Annex E – Planning Recommendations for Antiviral Use During a Pandemic
- Annex F – Infection Control and Occupational Health Guidelines During Pandemic Influenza in Traditional and Non-Traditional Health Care Settings
- Annex G – Clinical Care Guidelines and Tools
- Annex H – Resource Management Guidelines for Health Care Facilities
- Annex I – Guidelines for the Management of Mass Fatalities
- Annex J – Guidelines for Non-Traditional Sites and Workers
- Annex K – Communications Annex
- Annex L – Emergency Preparedness and Response System
- Annex M – Public Health Measures
- Annex N – Pandemic Influenza Surveillance Guidelines

Key Components of Canadian Health Sector Preparedness

- Surveillance
- Public Health Measures
- **Health Services**
- **Pandemic Vaccine**
- **Antiviral drugs**
- Communications
- Research
- International

Health Services

- **Infection control measures in hospitals and other health settings**
- Clinical care measures
- Resource management
- “Non-traditional” sites and workers
- Management of mass fatalities

National Guideline Development Process

- National expert committees
 - Infection Control Guideline Steering Committee
 - Pandemic Influenza Committee
 - Infection Prevention and Control/Occupational Health Guideline Working Group

Influenza Modes of Transmission - I

- *Directly* transmitted by droplet contact of the oral, nasal, or possibly conjunctival mucous membranes with oropharyngeal secretions of an infectious individual
- *Indirectly* transmitted from hands and objects onto mucous membranes
 - Influenza viruses have been shown to survive on hard, non-porous surfaces from 24-48 hours, on paper and tissue for 8-12 hours and hands for 5 minutes

Influenza Mode of Transmission - II

- Transmission through finer droplets (aerosols)?
 - No evidence to support that the virus can survive prolonged periods of time in the air
 - May be factor in hospitals (eg, aerosol-generating procedures)
- Direct and indirect contact accounts for most of the transmission of influenza in health care settings and in the community

Infection Control Strategies

– Health Care Settings

- “Hierarchy” of Controls: Engineering, administrative, personal protective measures (provision of PPE and training)
- Routine Practices: Handwashing is a critical infection control measure available during a pandemic
- Additional Precautions: Large droplet and contact, i.e. surgical mask, gloves, gowns, eye protection
- Aerosol-generating procedures:
Respirators

Infection Control Strategies

– Community

- Stay home when you're sick
- "Wash up" – Wash your hands
- "Cover up" – Use a tissue or a raise your arm up when you cough or sneeze
 - Masks not recommended for the general public
- "Clean up" – Throw away your tissues, frequently clean and disinfect household surfaces

Annex F, CPIP

Infection Control and Occupational Health Guidelines

- **Personal Protective Equipment**

Masks, Eye Protection and Face Shields

1. **Masks to minimize the transmission of influenza may be worn** when face-to-face with coughing individuals in the early phase(s) of the pandemic but are not practical or helpful when influenza transmission has entered the community **BIII**
2. **Masks should be worn to prevent the transmission of other organisms** when health care providers are face-to-face with undiagnosed coughing patients **BIII**
3. **Masks and eye protection, or face shields should be worn** to prevent HCW exposure to sprays of blood, body secretions or excretions. Surgical masks are considered adequate for this purpose **BIII**

Other Sources of Influenza Infection Control Information

- Annex M, CPIP
Public Health Measures
 - Do not recommend masks as a community-based intervention
- *Human Health Issues Related to Avian Influenza in Canada*
 - Environmental clean-up and/or culling
 - N95 or better respirator and safety goggles
 - Caring for patient with avian influenza
 - Surgical mask and eye protection
- *National Infection Control Guidelines – 1997 (under review)*
 - *Routine Practice and Additional Precautions*

Next Steps - I

- Re-formulation of Infection Prevention and Control/Occupational Health Guideline Working Group
 - Review of Annex F by Fall 2007
- Critical path supported by federal Health Portfolio and PHN:
 - Arm's length review of modes of transmission of influenza, relative contribution of respirators and review of various "positions" by Canadian Council of Academies

Next Steps - II

- WHO Interim Infection Prevention and Control Guidelines for Epidemic and Pandemic-Prone Acute Respiratory Disease in Health Care (May 2007)
- Focus groups: Exploring Surgical Masks, Infection Control and the Pandemic – Qualitative Research with Nurses (mid-2007)
- International collaboration: Unintended Consequences of PPE Recommendations (masks and respirators) (mid-2007)
- Review of other considerations: Legal, F/P/T policy, economic/opportunity costs, health system/logistical, ethical/social, stakeholder positions/views, international
 - Include explicit consideration of “precautionary principle”, as a component of the legal review
 - Additional citizen and stakeholder dialogues may be useful in informing policy decisions
- Holistic approach to optimizing occupational health and safety in health care settings
 - Pandemic influenza, other infectious diseases

Pandemic Vaccine

- Most effective public health intervention to mitigate the impact of a pandemic is through immunization with an effective vaccine against the new virus
- Established 10 year contract (2001-2011) with ID Biomedical/GSK – annual and pandemic vaccine production
- Enough to immunize all Canadians as quickly as possible

Pandemic Immunization

- Nationally coordinated approach to program & priority group development
- Priorities for pandemic immunization are flexible, but essential to planning
- Prioritization considers impact on:
 - Reducing morbidity/mortality by maintaining health service response and protecting high-risk groups
 - Maintaining essential services/critical infrastructure



Nature and Humans are full of surprises.

Keep it flexible and adaptable to any potential threat

Antiviral Drugs - I

- (Target of) 55M dose national antiviral stockpile for **treatment** of everyone in Canada who needs it
- Distributed on a per capita basis to all P/Ts
 - Federal surge in national emergency stockpile (3 million doses at present; 10 million dose target)
- Implementation (delivery) plans at various stages of development

Antivirals are only one component of a multifaceted pandemic strategy

Antiviral Drugs - II

- Task Group under Canadian Public Health Network Council considering whether F/P/T governments should stockpile antivirals for prophylaxis/expand use of NAS
 - External scientific review, reviews of other considerations (legal, ethical, international, FPT policy, logistical, etc.)
 - Includes citizen, target group and national organization dialogues
- Recommendation to Conference of Deputy Ministers of Health in mid-2007

Antivirals are only one component of a multifaceted pandemic strategy

“Shift Happens”

*Dr. David Shay,
CDC, Atlanta*

Pandemic Preparedness and Response

Then:

- Health Sector
(simple, vertical)
- Invisible
- Unscrutinized
- A-political

Now:

- Inter-sectoral and interdisciplinary (highly complex - horizontal and "diagonal")
- Highly visible
- Highly scrutinized
- Highly political
- International

Way Forward - I

- Research partnerships (CIHR, PHAC, others)
- Pandemic vaccine capacity increases
- Guidelines and policies on appropriate infection control measures during a pandemic
- Role of antivirals for prophylaxis
- MOU on roles and responsibilities for pandemic preparedness and response in the health sector

Way Forward - II

- Review of pandemic preparedness and response – PHN and more broadly
- Avoiding pandemic fatigue
- Pandemic influenza preparedness as a means to an end
 - Further preparedness should serve the dual purpose of enhancing pandemic preparedness, and improving our capacity to address:
 - any health/EID/emergency
 - day to day public health issues
 - Stronger public health system and presence

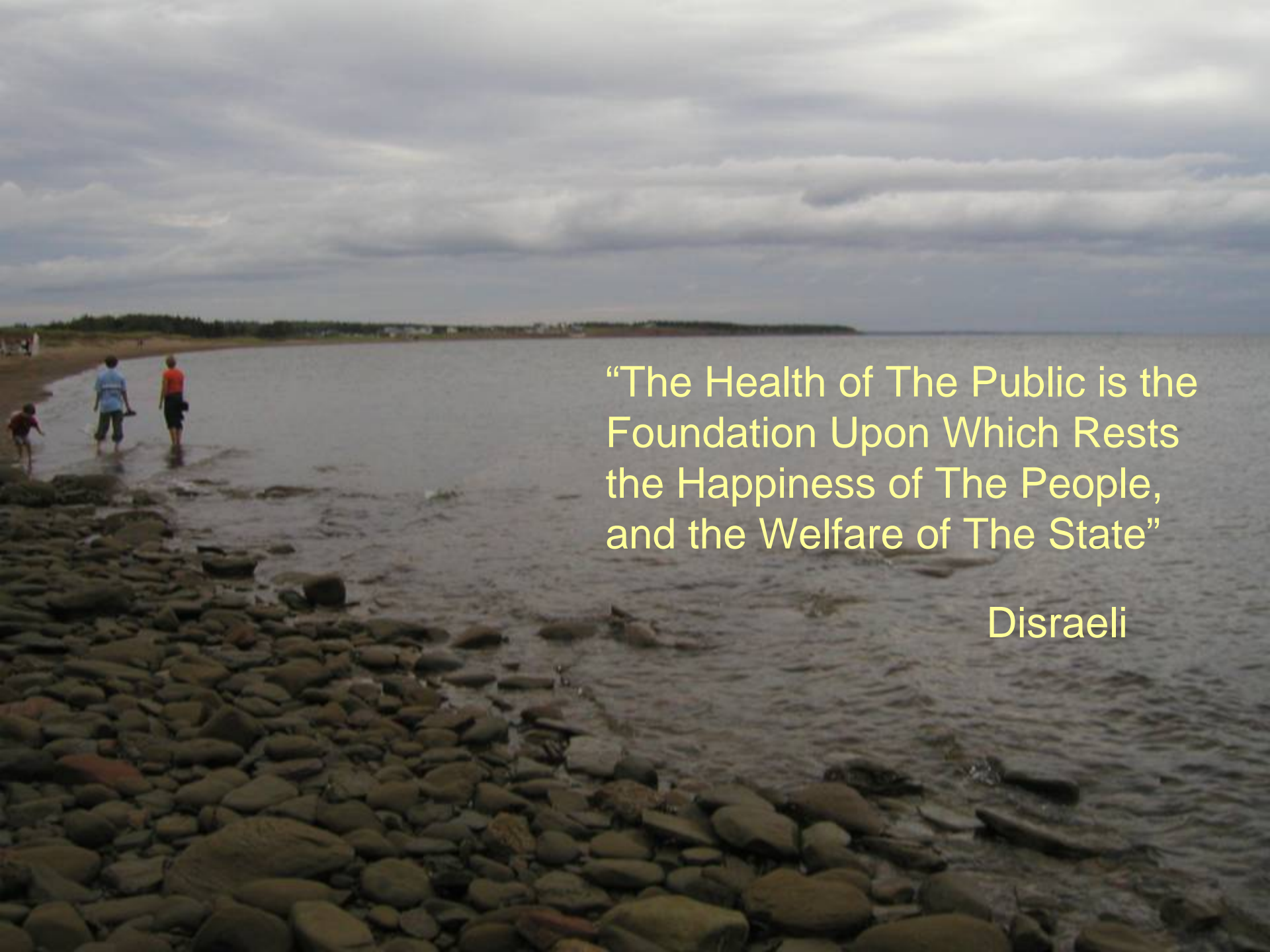




Even when
we're on the
right track,

if we're not
moving,
We'll get run
over.

Mark Twain

A photograph of a rocky beach with several people walking in the shallow water. The sky is overcast with grey clouds. The foreground is filled with dark, wet rocks. In the middle ground, three people are visible: one in a blue shirt, one in a red shirt, and one in a dark shirt. The background shows a distant shoreline with trees and buildings.

“The Health of The Public is the Foundation Upon Which Rests the Happiness of The People, and the Welfare of The State”

Disraeli



QUESTIONS?

Chief Public Health Officer (CPHO)

- Lead public health professional in Canada
- Deputy head of the Agency reporting to the Minister of Health
- Responsibilities include health protection and promotion, disease and injury prevention, surveillance, population health assessment, and emergency preparedness and response
- Issue reports/annual report on the state of public health in Canada

What are We Preparing For?

- A public health emergency that is inevitable but unpredictable in timing and epidemiology
- Arrival of the pandemic virus in Canada within 3 months of its appearance elsewhere; may be more rapid
 - 1st peak in illness 2 to 4 months after the arrival of the virus in Canada
- Outbreaks will occur simultaneously in multiple locations, although different areas of the country may experience peak activity at different times.
- In a local community a pandemic wave will generally last 6-8 weeks but this could vary
- A pandemic may last 12 to 18 months and more than one wave may occur within a 12 month period

Health Impacts of Pandemics

Assumptions for planning:

- The majority of the population (over 70%) will be infected over the course of the pandemic
- 15%-35% clinically ill over the course of the pandemic and of these:
 - assume that the majority of cases occur in the first wave (e.g. for a clinical attack rate of 35%, plan for 25% illness rate over 6 weeks in the first wave)
 - 50% will not require clinical care
 - up to 50% will seek outpatient care
 - 1% will be hospitalized
 - 0.4% will die

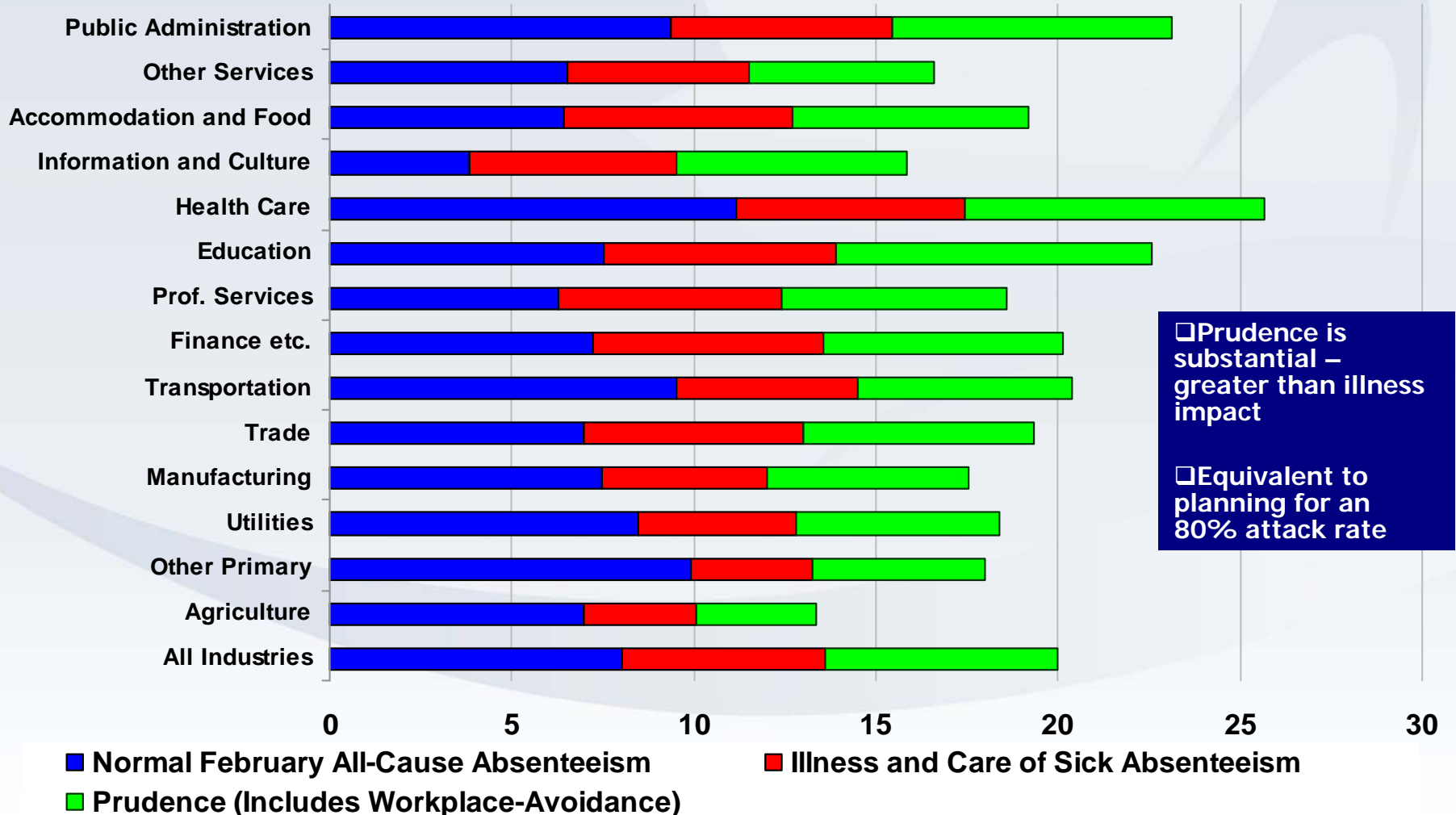
Health Impacts of a Pandemic in Canada

Moderate severity and no vaccines or antivirals scenario:

- 11,000 to 58,000 deaths
- 34,000 to 138,000 hospitalizations
- 2 to 5 million outpatients
- 4.5 to 10.6 million clinically ill but no formal care
- economic costs
 - health care: \$330 million to \$1.4 billion
 - societal (lost productivity): \$5 to \$38 billion

Industry planning estimates include estimates of possible workplace-avoidance impacts (based on social density and leave availability) and additional prudence

Peak Absenteeism Rates by Industry – Planning



Surveillance and Lab Testing

Surveillance Annex – NEW

- Influenza surveillance guidelines for both disease and virus surveillance
- Promote consistency in testing and reporting
- Designed to detect the pandemic virus and inform the pandemic response

Public Health Measures

Public Health Measures Annex - NEW

- Directed toward community disease control to reduce transmission
- Includes:
 - Personal infection prevention and control measures and in non-health settings
 - Case and contact management
 - “Social distancing” measures
 - Travel and border issues

Communications

- FPT communications network in place
- Public and professional information on seasonal influenza, pandemic influenza and avian influenza
- Media briefings

Communications

- Consistent messaging
- Clear roles and responsibilities for federal/provincial/territorial
- Delineates communications roles and responsibilities by jurisdiction and by phase
- Working with UK, USA, G7 plus Mexico, WHO to further coordinate pandemic communications response

CAUTION

**THIS SIGN HAS
SHARP EDGES**

DO NOT TOUCH THE EDGES OF THIS SIGN



ALSO, THE BRIDGE IS OUT AHEAD



International - I

- North American Avian and Pandemic Influenza Plan, under the Security and Prosperity Partnership
- Global Health Security Initiative (G7 plus Mexico), G8, APEC, International Partnership on Avian and Pandemic Influenza (IPAPI)

International - II

- Continued technical and financial support to countries, World Health Organization
 - eg, Global Action Plan on Pandemic Vaccines
- Second largest national donor in the world supporting avian and pandemic influenza preparedness and response (approximately \$US100 million to date)